

ABSTRACT OF THE DISCLOSURE

An apparatus and method for reducing a mode size of an optical beam. In one embodiment, an apparatus according to embodiments of the present invention includes a first optical waveguide disposed in a first semiconductor material of a semiconductor layer. The first optical waveguide includes an inverted tapered inner core disposed in an untapered outer core of the first optical waveguide. The inverted tapered inner core includes a smaller end and a larger end. The apparatus further includes a second optical waveguide disposed in a second semiconductor material of the semiconductor layer. The second optical waveguide is a tapered optical waveguide having a larger end and a smaller end. The larger end of the second optical waveguide is disposed proximate to the larger end of the inverted tapered inner core of the first optical waveguide such that an optical beam is to be directed from the smaller end to the larger end of the first optical waveguide to the larger end to the smaller end of the second optical waveguide.